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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/788,474	03/01/2004	Soichi Kato	R0202T-2	7555

7590 08/11/2004

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EXAMINER

DUONG, THO V

ART UNIT PAPER NUMBER

3743

DATE MAILED: 08/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/788,474

Applicant(s)

KATO ET AL.

Examiner

Tho v Duong

Art Unit

3743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al. (US 5,979,051) in view of Hasegawa et al. (US 6,129,143). Kato discloses (figures 1, 6,7, column 1, lines 59-63 and column 5, lines 40-48) a heat exchanger comprising a plurality of tubes (2) made of an aluminum alloy clad with a disposed brazing material; a pair of tanks (3,4) brazed with the tube's end (2a) to form a heat exchanger core; a plurality of fins (5) clad with brazing material disposed between the tubes (2); and the tubes (2) having plate shape and a plurality of beads (21). Kato further discloses (column 7, lines 40-49) that the outer surface of the tube (2) having recesses (21a), which are filled with a brazing material. Kato does not disclose that the outer surface of the tube has a sacrifice layer. Hasegawa discloses (figure 3 and column 4, lines 30-35) a sheet for making tubes of a heat exchanger comprising a sacrifice layer (intermediate layer) coated between a core material and a brazing material to provide an excellent corrosion resistance for the sheet. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Hasegawa's teaching in Kato's heat exchanger to provide an excellent corrosion resistance for the tubes. With regards to claims 2-4, the method of forming the device such as the brazing material in said recesses portions is supplied from either a row laminated brazing material provided on the tank or row disposed

Art Unit: 3743

brazing material provided on at least one tubes; or a row laminated provided on the fins when said tubes, tanks and fins of said heat exchanger core are brazed into one body, said clad brazing material melts and fills recessed portions formed on an outer surfaces of said tubes” or “when said tubes and tank of said exchanger core are brazed into one body, are not germane to the issue of patentability of the device itself. The patentability of the heat exchanger in form of the apparatus claims 1-4 does not depend on its process of having the brazing material filled up the recessed portion supplied from a fin, or a tank, or a tube during the step of assembling the heat exchanger. In fact, the claimed heat exchanger is the same as the final combination device of Kato and Hasegawa in which a brazing material is filled up a recessed portion on the outer surface of the tube regardless of where this brazing material is supplied from. “Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). (MPEP 2114).

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Conn et al. (US 5,692,300) in view of Hasegawa et al. Conn discloses (figures 1,3,4 and column 5, lines 65-67) a heat exchanger comprising a heat exchanger core including a plurality of tubes (212) flowing a medium for heat exchange and a pair of tanks (16,18) to which ends of the tubes are connected, each tube (212) formed by shaping a plate member not clad with a row laminated brazing material; and a plurality of recesses at lock seams (220) formed on an outer surface of the plate

Art Unit: 3743

member, wherein the recesses are filled with a brazing material (326). Conn does not disclose a sacrifice layer on an outer surface of the tube. Hasegawa discloses (figure 3 and column 4, lines 30-35) a sheet for making tubes of a heat exchanger comprising a sacrifice layer (intermediate layer) coated between a core material and a brazing material to provide an excellent corrosion resistance for the sheet. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Hasegawa's teaching in Conn's heat exchanger to provide an excellent corrosion resistance for the tubes.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Negura et al. (US 4,901,908) discloses an aluminum material for brazing.

Joshi et al. (US 5,172,476) discloses a method of manufacturing heat exchanging tubing.

Isobe et al. (US 5,500,288) discloses an aluminum surface having chemical conversion coating.

Ross et al. (US 5,956,846) discloses a method and apparatus for controlled atmosphere brazing of unwelded tubes.

Dumetz et al. (US 6,129,147) discloses a folded heat transfer tube with grooves having brazing material.

Ouchi et al. (US 5,186,250) discloses a tube for heat exchanger having recesses on its outer surface.

Yu et al. (US 5,579,837) discloses a heat exchanger tube having a central partition by shaping a plate.

Art Unit: 3743

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Tho Duong whose telephone number is (703) 305-0768. The examiner can normally be reached on from 9:30-6 PM.

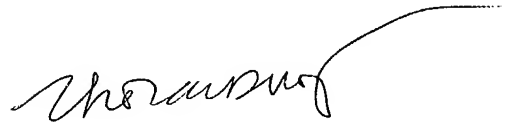
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennet, can be reached on (703) 308-0101. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.



TD

August 2, 2004



Tho Duong

Patent Examiner.